REMARKS

Claims 1-38 were pending in the application. Claims 1-38 stand rejected. Claims 12-13, 17-28, and 37-38 were cancelled. Claims 1, 3, 14, 29, 31-36 were amended. Claims 40-52 were added. Claims 1-11, 14-16, 29-36, and 40-52 remain in the application.

Claims 1, 2-4, 6, 9-10, 12-13, 17, 19, 25, 30-33, 35-36, and 38 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sano (US 5,739,924). The rejection stated in relation to Claim 1:

"Regarding claim 1, Sano discloses a method for processing a captured image with one or more correction processes selected from a plurality of such processes, each associated with correction of specific types of image defect, in order to improve the appearance of a viewed image generated from the captured image, the method comprising the steps of: collecting metadata related to image capture that is unique to each image that is captured, wherein the metadata is capable of indicating whether the specific types of image defects are likely to be present in the viewed image generated from the captured image (c. 4, ll. 36-58); predicting the presence of the image defects based at least in part on the meta data, thereby generating processing application criteria which indicate a level of image defect that if left untreated would reduce the perceived quality of the viewed image (figure 3, step #3; c. 6, ll. 43-59); selecting one or more correction processes to employ on the captured image based on the process application criteria (figure 3; step #4; c. 6, ll. 43-59); and applying the one or more selected correction processes to the captured image to generate the viewed image (Figure 3; Item #5; c. 6, ll. 43-59)."

Amended Claim 1 states:

1. A method for processing a captured image in order to improve the appearance of a viewed image generated from the captured image, said method comprising the steps of:

collecting meta data related to image capture that is unique to each image that is captured, wherein the meta data is capable of indicating whether specific types of image defects are likely to be present in the viewed image generated from the captured image;

predicting the presence of one or more image defects exclusive of a scene balance defect, said predicting being based at least in part on the meta

data, thereby generating process application criteria which indicate a level of image defect that if left untreated would reduce the perceived quality of the viewed image;

selecting one or more correction processes to employ on the captured image based on the process application criteria;

applying a scene balance correction process to the captured image independent of said meta data; and

applying the one or more selected correction processes to the captured image to generate the viewed image.

The language of Claim 1 is supported by the application as filed, notably the original claims, Figure 2, and at page 23, line 6 to page 24, line 6.

Claim 1 requires predicting the presence of one or more image defects exclusive of a scene balance defect based at least in part on meta data, selecting and applying correction processes for those defects, and applying a scene balance correction process independent of the meta data. This is discussed in the application:

"Because the scene balance algorithm is needed for nearly all images, due to imperfections in image capture exposure and/or illuminant color balance, and the scene balance algorithm is computationally efficient, due to the use of a smaller subsampled image, it is applied to every image in the preferred embodiment of the present invention.

"However, in accordance with the invention, and as noted earlier, the remaining image processing steps, which are located in the image processing block **70**, are selectively applied based on the output of the image defect prediction process **68**." (application, page 24, lines 2-10; emphasis added)

This is unlike Sano, which provides corrections on the basis of read "photographic information":

"It is then judged based on the photographic information whether any image quality correction is necessary (Step #3). If some image quality correction is necessary (YES in Step #3), the content of a necessary quality correction is set (Step #4)." (Sano, col. 6, lines 42-46; see also generally col. 6, lines 36-59)

Claims 2-4, 6, 9-10 are allowable as depending from Claim 1 and as follows.

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Claim 6 requires that the image defect is a noise defect. The rejection stated:

> 'Regarding claim 6, Sano discloses an image defect which is a noise defect (i.e. an image having poor contrast can be said to be "noisy") and the metadata is exposure time and camera lens f-number (c. 8, ll. 40-56).'

Applicants respectfully traverse the position that 'an image having poor contrast can be said to be "noisy"'. The rejection disagrees with the ordinary meaning of the term "noise" as used by those of skill in the art and as used in the application. The Glossary of a digital imaging text states:

> **noise.** Random variation in the pixel values in an image caused by the acquisition process rather than by the scene itself. Noise originates in all electronic equipment." (*Practical Digital Image Processing*, R. Lewis, Ellis Horwood, New York, 1990, page 248)

Another reference in the field make a similar statement:

> "The second complication is the ubiquitous problem of *noise*. Due to a great many factors, such as light intensity, type of camera and lens, motion, temperature, atmospheric effects, dust, and others, it is very unlikely that two pixels that correspond to precisely the same grey level in the scene will have the same level in the image. Noise is a random effect, and is characterizable only statistically. The result of noise on the image is to produce a random variation in level from pixel to pixel, and so the smooth lines and ramps of the ideal edges are never encountered in real images." (*Algorithms for Image Processing and Computer Vision*, J. Parker, John Wiley & Sons, Inc., New York, 1997 (pages 3-5)

Poor contrast, unlike noise, is not a random variation.

Claims 12-13, 17, 19, 25, 30 were cancelled.

Claim 36 is supported and allowable on the same grounds as Claim 1.

Claims 31-33 and 35 were amended to depend from Claim 36 and, as necessary to track the language of Claim 36, and are allowable on that basis.

Claim 38 was cancelled.

Claims 27-29 stand rejected under 35 U.S.C. 102(b) as being anticipated by Schildkraut et al. (US 6,292,574). Claims 27-28 were cancelled. Claim 29 was amended to depend from Claim 50, discussed below.

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Claims 5 and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (US 5,739,924) in view of Shiota et al. (US 6,011,547). Claim 5 is allowable as depending from Claim 1. Claim 34 is allowable as depending from Claim 36.

Claims 7, 18, 20-22, 24, 26, and 37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (US 5,739,924) in view of Feldis, III (US 2003/0007078). Claim 7 is allowable as depending from Claim 1. Claims 18, 20-22, 24, 26, and 37 were cancelled.

Claims 8 and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (US 5,739,924) in view of Silverbrook (US 6,727,951). Claim 8 is allowable as depending from Claim 1. Claim 23 was cancelled.

Claims 11 and 14-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (US 5,739,924). Claims 1 and 14-16 are allowable as depending from Claim 1.

Added Claim 39 is supported and allowable on the same grounds as Claim 1.

Claim 40 states:

40. The method of claim 39 wherein said plurality of defects includes each of: a noise defect, a redeye defect, a tone scale defect, and a sharpness defect.

Claim 40 is supported by the application as filed, notably the original claims and Figure 2. Claim 40 requires computing predictions and applying corrections as to each of the listed defects. Sano does not address such a combination of defects.

Claims 41-44 are allowable as depending from Claim 40 and as follows.

Claim 41 is supported by the application as filed, notably the original claims.

Claims 42-43 state:

42. The method of claim 39 further comprising calculating intermediate parameter values using said meta data and wherein said computing further comprises determining at least one of said predictions using both said meta data and said intermediate parameter values.

43. The method of claim 42 wherein said intermediate parameter values quantify one or more of: degree of exposure of subject, degree of

exposure of background, angular magnification of the subject, final image viewing distance, maximum handheld shutter time, and display size factor. Claims 42-43 are supported by the applications as filed, notably at page 32, line 27 to page 41, line 18. Sano does not disclose use of these intermediate parameter values.

The cited references in combination also fail to teach or suggest more than Sano alone in relation to Claims 40-44.

Claims 45-49 are supported and allowable on the same grounds as Claims 40-44.

Claim 50 states:

50. A method for processing a captured image having a flash illuminated human subject, said method comprising the steps of:

collecting meta data related to the captured image, said meta data identifying a demographic characteristic related to redeye;

computing a prediction of presence and severity of redeye defect in the captured image using said meta data; and

applying a redeye defect correction process on the captured image responsive to said prediction.

Claim 50 is supported by the application as filed, notably the original claims. Claim 50 requires collecting meta data identifying a demographic characteristic related to redeye, computing a prediction of redeye defect using the meta data, and applying a redeye defect correction process responsive to the prediction.

The rejection cited Schildkraut in relation to Claims 27-28 stating:

"Regarding claim 27, Schildkraut discloses an image processing method incorporating an image defect location and correction process (i.e. redeye) that is applied to an image only when a demographic characteristic of the image (i.e. including skin color) is predicted to cause a level of image defect that if left untreated would reduce the perceived quality of the final viewed image (figure 2; abstract)."

"Regarding claim 28, Schildkraut discloses an image defect which is a red-eye defect (abstract)."

Schildkraut does not collect meta data identifying a demographic characteristic related to redeye, computing a prediction of redeye defect using the meta data, and applying a redeye defect correction process responsive to the prediction. Schildkraut detects skin

colored regions and searches those regions for pixels with color characteristic of redeye defect.

Claim 29 is allowable as depending from Claim 50 and as further defining a feature of meta data not used in Schildkraut.
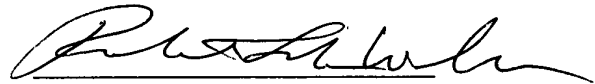
Claim 51 is allowable as depending from Claim 50.

Claim 52 is allowable on the same grounds as Claim 50.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

Attorney for Applicant(s)
Registration No. 30,700

Robert Luke Walker/amb
Rochester, NY 14650
Telephone: (585) 588-2739
Facsimile: (585) 477-1148